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Title: "A Distributed Resource Discovery Framework for a Network"

APPEAL BRIEF

To: Commissioner for Patents
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Pursuant to 37 C.F.R. §41.37, Applicant hereby submits an appeal brief for application 09/989,474, filed November 20, 2001, within the requisite time from the date of filing the Notice of Appeal. Accordingly, Applicant appeals to the Board of Patent Appeals and Interferences seeking review of the Examiner's rejections.

Appeal Brief Items**Page**

(1)	Real Party in Interest	3
(2)	Related Appeals and Interferences	3
(3)	Status of Claims	3
(4)	Status of Amendments	3
(5)	Summary of Claimed Subject Matter	4
(6)	Grounds of Rejection to be Reviewed on Appeal	7
(7)	Argument	8
(8)	Appendix of Appealed Claims	30
(9)	Appendix of Submitted Evidence	41
(10)	Appendix of Related Proceedings	42

(1) Real Party in Interest

The real party in interest is Microsoft Corporation, the assignee of all right, title and interest in and to the subject invention.

(2) Related Appeals and Interferences

Appellant is not aware of any other appeals, interferences, or judicial proceedings which will directly affect, be directly affected by, or otherwise have a bearing on the Board's decision to this pending appeal.

(3) Status of Claims

Claims 1-31 stand rejected and are pending in the Application. Claims 1-31 are appealed. Some of these claims were previously amended. Claims 1-31 are set forth in the Appendix of Appealed Claims.

(4) Status of Amendments

A Final Office Action was issued on October 7, 2005.

A Response to the Final Office Action was filed February 14, 2006. No claims were amended, cancelled, withdrawn or added via the Response.

An Advisory Action was issued on March 13, 2006, indicating that the request for reconsideration had been considered but did not place the application in condition for allowance.

Appellant filed a Notice of Appeal and Pre-Appeal Brief Request for Review on April 4, 2006 in response to the Advisory Action and the Final Office Action.

A Notice of Panel Decision from Pre-Appeal Brief Review was issued on January 30, 2007, indicating that all claims 1-31 remain finally rejected.

(5) Summary of Claimed Subject Matter

A concise explanation of each of the independent claims is included in this Summary section, including specific reference characters. These specific reference characters are examples of particular elements of the drawings for certain embodiments of the claimed subject matter and the claims are not limited to solely the elements corresponding to these reference characters.

With respect to independent claim 1, a method is provided for performing resource discovery in a network 200 having multiple subnets 210, 220, 230, 240, wherein inter-subnet discovery agents 211a, 212a, 213a, 221a, 222a, 232a, 241a, 242a are installed on nodes 211, 212, 213, 221, 222, 231, 232, 241, 242 within the multiple subnets 210, 220, 230, 240 to support inter-subnet resource discovery (Fig. 2 of Drawings; and page 8, line 28 to page 9, line 28 of Specification). The method includes designating, within a first subnet 210, a first inter-subnet discovery agent 213a on a first node 213 as an active discovery agent 213a (Fig. 2 of Drawings; page 9, line 29 to page 10, line 12 of Specification). The method also includes discovering, by the first inter-subnet discovery agent 213a, active discovery agents 221a, 231a, 241a on neighboring subnets 220, 230, 240 in the network 200 (Fig. 2 of Drawings; page 9, line 29 to page 10, line 12 of Specification). The method further includes propagating, by the first node 213 containing the active discovery agent 213a, an inter subnet resource discovery

search request to the active discovery agents 221a, 231a, 241a on neighboring subnets 220, 230, 240 (Fig. 2 of Drawings; page 10, lines 3-12 of Specification).

With respect to independent claim 11, provided is a computer-readable medium 104, 108, 110 having computer-executable instructions for facilitating performing resource discovery in a network 200 having multiple subnets 210, 220, 230, 240 and wherein inter-subnet discovery agents 211a, 212a, 213a, 221a, 222a, 232a, 241a, 242a installed on nodes 211, 212, 213, 221, 222, 231, 232, 241, 242 within the multiple subnets 210, 220, 230, 240 support inter-subnet resource discovery, is provided (Figs 1 and 2 of Drawings; page 8, lines 1-10, and page 8, line 28 to page 9, line 28 of Specification). The computer-readable medium 104, 108, 110 having computer-executable instructions facilitating performing steps including designating, within a first subnet 210, a first inter-subnet discovery agent 213a on a first node 213 as an active discovery agent 213a (Figs 1 and 2 of Drawings; page 8, lines 1-10, and page 9, lines 12-28 of Specification). The computer-executable instructions also facilitate discovering, by the first inter-subnet discovery agent 213a, active discovery agents 221a, 231a, 241a on neighboring subnets 220, 230, 240 in the network 200 (Fig. 2 of Drawings; page 9, line 29 to page 10, line 12 of Specification). The computer-executable instructions further facilitate propagating, by the first node 213 containing the active discovery agent 213a, an inter-subnet resource discovery search request to the active discovery agents 221a, 231a, 241a on neighboring subnets 220, 230, 240 (Fig. 2 of Drawings; page 11, lines 25-31 of Specification).

With respect to independent claim 21, provided is a resource discovery framework for resource discovery is embodied in a computer-readable medium

104, 108, 110 in a network 200 including multiple subnets 210, 220, 230, 240 and discoverable networked resources 211, 212, 213, 221, 222, 231, 232, 241, 242 (Figs. 1 and 2 of Drawings; page 8, lines 1-10, and page 8, line 28 to page 9, line 11 of Specification). The framework includes an active discovery agent 213a, 221a, 231a, 241a designated for ones of the multiple subnets 210, 220, 230, 240 for identifying active discovery agents 213a, 221a, 231a, 241a on neighboring subnets 210, 220, 230, 240 within the network 200 (Fig. 2 of Drawings; page 9, line 12 to page 10, line 12 of Specification). The framework also includes a selection mechanism for designating the active discovery agent 213a, 221a, 231a, 241a within each subnet 210, 220, 230, 240 (Fig. 2 of Drawings; page 9, line 12 to page 10, line 3 of Specification). The framework further includes a request propagation mechanism by which nodes 213, 221, 231, 241 containing the active discovery agents 213a, 221a, 231a, 241a propagate an inter-subnet resource discovery search request to active discovery agents 213a, 221a, 231a, 241a on neighboring subnets 210, 220, 230, 240 (Fig. 2 of Drawings; page 11, lines 25-31).

With respect to independent claim 24, a system is provided for automating network-wide resource discovery in networks 200 having multiple subnets 210, 220, 230, 240 (Fig. 2 of Drawings; page 8, line 28 to page 9, line 4 of Specification). The system includes a set of inter-subnet discovery agents 211a, 212a, 213a, 221a, 222a, 232a, 241a, 242a installed on nodes 211, 212, 213, 221, 222, 231, 232, 241, 242 within the multiple subnets 210, 220, 230, 240 support inter-subnet resource discovery (Fig. 2 of Drawings; page 9, lines 4-28 of Specification). The system also includes a first inter-subnet discovery agent 213a on a first node 213 designated as an active discovery agent 213a, the first

inter-subnet discovery agent 213a including procedures for facilitating discovering active discovery agents 221a, 231a, 241a on neighboring subnets in the network 220, 230, 240 (Fig. 2 of Drawings; page 9, line 29 to page 10, line 12 of Specification). The first inter-subnet discovery agent 213a further includes procedures for propagating an inter-subnet resource discovery search request to the active discovery agents 221a, 231a, 241a on neighboring subnets 220, 230, 240 (Fig. 2 of Drawings; page 11, lines 25-31 of Specification).

(6) Grounds of Rejection to be Reviewed on Appeal

Claims 1-2, 4-5, 7-8, 11-12, 14-15, 17-18, 24-25, 27-28 and 30-31 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Application Publication No. 2002/0161883 ("Matheny").

Claims 3, 6, 13, 16, 26 and 29 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Matheny, in view of U.S. Patent Application Publication No. 2002/0196451 ("Schlonski").

Claims 9-10 and 19-20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Matheny, in view of U.S. Patent No. 6,636,499 ("Dowling").

Claim 21 stands rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,865,728 ("Branson"), in view of Dowling.

Claims 22-23 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Branson in view of Dowling, in further view of U.S. Patent Application Publication No. 2002/0026527 ("Das").

(7) Argument

A. The rejection under 35 U.S.C. §102(e) over Matheny does not establish a *prima facie* case of anticipation.

Claims 1-2, 4-5, 7-8, 11-12, 14-15, 17-18, 24-25, 27-28 and 30-31 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Application Publication No. 2002/0161883 ("Matheny").

Respectfully, the Office has failed to establish a *prima facie* case of anticipation over Matheny.

Claims 1-2, 4-5 and 7-8

Claim 1 recites a method for performing resource discovery in a network having multiple subnets and wherein inter-subnet discovery agents installed on nodes within the multiple subnets support inter-subnet resource discovery, the method comprising:

- designating, within a first subnet, a first inter-subnet discovery agent on a first node as an active discovery agent;
- discovering, by the first inter-subnet discovery agent, active discovery agents on neighboring subnets in the network; and
- propagating, by the first node containing the active discovery agent, an inter subnet resource discovery search request to the active discovery agents on neighboring subnets.

Appellant asserts that claim 1 is not anticipated by Matheny.

Review of the Matheny Reference

To clarify distinctions between Matheny and the claims to which it is applied, appellant offers this review of what Matheny does and does not disclose. Matheny discloses a hierarchical system for collecting, aggregating, and

coalescing discovery network discovery data in which one or more network managers direct a number of discovery agents and aggregator agents. Specifically, appellant notes six particular aspects of Matheny to clarify what it does and does not disclose, both in passages relied upon by the Office and in other portions of the reference.

First, Matheny discloses using one or more network managers that control discovery operations by directing discovery agents. Matheny's "network management system 102 includes a network manager 104, which utilizes a number of different network discovery agents 106 and aggregator agents 108 to perform discovery operations" (*Matheny*, Page 1, Paragraph 8; emphasis added). The network manager of Matheny controls the discovery agents: "[T]he network manager 104 may be a host computer that includes software for initiating and coordinating network discovery operations on devices in the network using a number of different agents." (*Matheny*, Page 1, Paragraph 10; emphasis added). When a network manager seeks information about devices in the network, "[t]he discovery operation 300 is initiated by the network manager 104" (*Matheny*, Page 2, Paragraph 18). Thus, Matheny teaches and relies upon a hierarchy in which one or more network managers direct discovery agents.

Second, Matheny's network managers and discovery agents perform distinctly different roles. As previously described, Matheny's "network manager may be a host computer that includes software for initiating and coordinating network discovery operations using a number of different agents" (*Matheny*, Page 1, Paragraph 10). By contrast, "the discovery agents 106 collect information from targeted network devices . . . by polling devices in a certain range of addresses or

in a particular subnet” (*Matheny*, Page 1, Paragraph 11; emphasis added). Matheny’s discovery agents collect information about devices using various polling techniques (*Matheny*, Page 1, Paragraphs 11-14). Thus, network managers and discovery agents perform different functions.

Third, Matheny makes plain that the network manager and the discovery agents are different entities. The network manager 104 and discovery agents 106 are depicted as separate entities in Figure 1. The separateness of the network manager and the discovery agents is expressly emphasized in that “[d]iscovery agents may be on the same computer as the discovery manager, or may reside on a remote machine” (*Matheny*, Page 1, Paragraph 11). Thus, network managers and discovery agents are separate entities, even if they reside on the same computer.

Fourth, Matheny does not designate whether discovery agents are active. The word “active” is not used in Matheny. Furthermore, the word “designate,” in any form or conjugation, appears only twice in the reference, and both times, in paragraphs 19 and 33, the word “designate” is used with regard to an address range or a subnet in which discovery information is sought. For example:

“The discovery request may include requested data types and *designate an address range(s) or subnet(s) for discovery*. The discovery request may be compared to the available capabilities defined by the matrix derived from the registration files in the agent directory. The network manager 104 loops through files in a command directory, searching for XML files that match the address ranges or subnets identified for discovery (block 304). These files may include a high-level tag named <task> for easy recognition. *The network manager may then create a command file for each identified discovery agent.*”

(*Matheny*, Page 2, Paragraph 19; emphasis added). Matheny does not differentiate between discovery agents, and, if more than one discovery agent is identified in a designated address range or subnet, the network manager creates a “command file for *each* identified discovery agent” (*Matheny*, Page 2, Paragraph 19; emphasis added). Matheny does not disclose designating a discovery agent as active.

Fifth, nowhere does Matheny disclose that discovery agents have the capability to identify or discover another discovery agent. Matheny’s discovery agents interact with and identify devices (*Matheny*, Page 1, Paragraphs 11-14, 21, and 23). Matheny’s discovery agents respond to network managers that invoke them. However, Matheny does not disclose that one discovery agent may identify or discover another discovery agent.

Sixth, Matheny does not disclose network managers recognize, identify, or can discover one another. Matheny recites that “More than one network manager may be allocated to the network” (*Matheny*, Page 1, Paragraph 10). However, Matheny nowhere discloses, that one network manager may identify or discover another network manager.

Matheny Fails to Teach Each and Every Element of the Claims

Matheny does not teach each and every element of the claims to which it is applied, and, thus, does not anticipate the claims. The Manual of Patent Examining Procedure expressly states a reference does not anticipate a claim when the reference fails to teach each and every element of the claim:

**"TO ANTICIPATE A CLAIM, THE REFERENCE MUST
TEACH EVERY ELEMENT OF THE CLAIM**

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)." . . . "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990)." (MPEP, § 2131).

The cited reference fails to teach every element of the claims, either expressly or inherently, for at least three reasons, each of which independently proves that Matheny does not anticipate the claims.

For purposes of limiting the issues for consideration, the following remarks demonstrate that Matheny does not anticipate all of the elements of independent claim 1.

Matheny's Discovery Agents Do Not Discover Discovery Agents

Appellant maintains the position asserted earlier in prosecution that Matheny fails to disclose "discovering, by the first inter-subnet discovery agent, active discovery agents on neighboring subnets in the network" as recited in claim 1. Appellant asserts that Matheny does not anticipate this element and, respectfully, that the final rejection of claim 1 is based on a misreading of both the claims and the cited reference.

The Office asserts that “discovering discovery agents” is “not recited in the rejected claims” (Final Office Action, page 2). Respectfully, however, although claim 1 includes an intermediate clause between the words “discovering” and “discovery agents,” the claim expressly recites “discovering . . . discovery agents.” Discovery agents are the object of the verb “discovering” in claim 1.

Matheny neither teaches nor suggests, nor is it inherent in Matheny, that a discovery agent discovers other discovery agents. Respectfully, the passage of Matheny relied upon by the Office does not show that Matheny anticipates this element; the passage describes that discovery agents collect information about devices, while the network manager collects information from the discovery agents:

FIG. 3 is a flowchart that describes a discovery operation 300 according to an embodiment. *The discovery operation 300 is initiated by the network manager 104 receiving a discovery request (block 302). The discovery request may include requested data types and designate an address range(s) or subnet(s) for discovery. The discovery request may be compared to the available capabilities defined by the matrix derived from the registration files in the agent directory. The network manager 104 loops through files in a command directory, searching for XML files that match the address ranges or subnets identified for discovery (block 304). These files may include a high-level tag named <task> for easy recognition. The network manager may then create a command file for each identified discovery agent.*

(Matheny, Page 2, Paragraph 19; emphasis added). This passage does not disclose that a discovery agent may discover or identify another discovery agent, only how a network manager may identify a discovery agent.

Other portions of Matheny further detail the different functions performed by network managers and discovery agents, emphasizing that discovery agents do not discover or identify other discovery agents. Matheny's discovery agents poll devices to collect device information:

The discovery agents 106 collect information from targeted network devices 110 during a discovery operation (described below), for example, by polling devices in a certain range of addresses or in a particular subnet. Different discovery agents may perform discovery operations using different techniques, and may collect different types of data. Discovery agents may be on the same computer as the discovery manager, or may reside on a remote machine that uses a local module to communicate with the discovery manager.

(*Matheny*, Paragraph 11; emphasis added). Matheny recites lists a number of different techniques by which the discovery agents poll devices, including SNMP, RMON, and ICMP, but these all techniques are directed to how discovery agents collect information about devices. (See *Matheny*, Page 1, Paragraphs 12-14). By contrast, Matheny's discovery agents provide information that may be aggregated and collected by network managers:

The network manager 104 continues to loop through the other discovery agents 106 (block 320), repeating the operation (blocks 306-318) until all registered discovery agents have been called and all discovered and aggregated information has been coalesced into the discovery document.

(*Matheny*, Paragraph 28; emphasis added). Matheny's emphasis on delineating the separate functions of the network managers and the discovery agents makes clear that Matheny neither teaches nor suggests discovery agents

discovering other discovery agents. Therefore, Matheny fails to anticipate independent claim 1.

Matheny Does Not Disclose Other Elements of the Independent Claims

In addition to clarifying that Matheny does not disclose discovery agents discovering or identifying discovery agents, appellant offers three additional reasons why Matheny fails to anticipate claim 1 and the claims depending there from. Each of these reasons alone also is sufficient to demonstrate that Matheny fails to anticipate claim 1.

First, Matheny does not disclose “designating, within a first subnet, a first inter-subnet discovery agent on a first node as an active discovery agent,” as recited in claim 1. Matheny nowhere discloses designating a discovery agent within each subnet as active. If anything, and as previously described, Matheny discloses the opposite: the network manager creates a “command file” for each identified discovery agent” (*Matheny*, Page 2, Paragraph 19; emphasis added). Because Matheny fails to disclose or suggest, either expressly or inherently, designating an active discovery agent, Matheny does not to anticipate claim 1.

Second, Matheny does not disclose “propagating, by the first node containing the active discovery agent, an inter-subnet resource discovery search request to the active discovery agents on neighboring subnets,” as recited in claim 1. As previously described, Matheny’s discovery agents poll for resources in assigned or specified locations, and the information retrieved may be used by a network manager. However, Matheny discloses nothing regarding a discovery agent **propagating** a request to another discovery agent. Similarly, even in a

network that includes multiple network managers, Matheny does disclose or suggest the possibility that one network manager may be aware of another, or that one may propagate requests or any other information to another. Matheny fails to disclose, expressly or inherently, propagating requests by one discovery agent to another, and thus does not anticipate the claims.

Third, solely for the sake of argument, even if Office intended to equate or merge the functions of Matheny's network managers and discovery agents to assert that Matheny anticipates the claims, appellant respectfully asserts that such an assumption contradicts the reference itself. At no time thus far has the Office expressly suggested that functions of network managers and discovery agents could be or should be equated or combined. Furthermore, Matheny makes clear that the network managers and discovery agents are separate entities, and teaches that they are not to be combined. As previously and repeatedly described, the network managers and discovery agents perform separate functions. Moreover, the separateness of the network managers and discovery agents is expressly underscored by Matheny's recitation that "discovery agents may be on the same computer as the discovery manager, or may reside on a remote machine" (*Matheny*, Page 1, Paragraph 11). By Matheny's own words, even if implemented on the same computer, a network manager and a discovery agent are separate entities. Thus, Matheny itself forecloses the possibility of combining or merging its network managers and discovery agents.

For the foregoing reasons, appellant respectfully asserts that Matheny fails to teach or suggest, expressly or inherently, each and every element recited by claim 1. Accordingly, appellant requests that the rejection under 35 U.S.C.

§ 102(e) be withdrawn from claim 1. In addition, because dependent claims 2, 4-5, and 7-8 apply additional limitations to claim 1, from which each depends, appellant requests that respective rejections under 35 U.S.C. § 102(e) and be withdrawn from claims 2, 4-5, and 7-8. Appellant further requests that claims 1-2, 4-5 and 7-8 be allowed.

Claims 11-12, 14-15 and 17-18

Claim 11 recites a computer-readable medium having computer-executable instructions for facilitating performing resource discovery in a network having multiple subnets and wherein inter-subnet discovery agents installed on nodes within the multiple subnets support inter-subnet resource discovery, the computer-readable medium having computer-executable instructions facilitating performing the steps of:

- designating, within a first subnet, a first inter-subnet discovery agent on a first node as an active discovery agent;
- discovering, by the first inter-subnet discovery agent, active discovery agents on neighboring subnets in the network; and
- propagating, by the first node containing the active discovery agent, an inter-subnet resource discovery search request to the active discovery agents on neighboring subnets.

Appellant asserts that claim 11 is not anticipated by Matheny. Each of the following reasons alone also is sufficient to demonstrate that Matheny fails to anticipate claim 11.

First, and as argued above in regard to claim 1, Matheny does not disclose “designating, within a first subnet, a first inter-subnet discovery agent on a first node as an active discovery agent,” as recited in claim 11. Matheny completely fails to disclose designating a discovery agent within each subnet as active. If

anything, as previously described, Matheny discloses the opposite: the network manager creates a "command file" for each identified discovery agent" (*Matheny*, Page 2, Paragraph 19; emphasis added). Because Matheny fails to disclose or suggest designating an active discovery agent, Matheny does not anticipate claim 11.

Second, Matheny does not disclose "propagating, by the first node containing the active discovery agent, an inter-subnet resource discovery search request to the active discovery agents on neighboring subnets," as expressly recited in claim 11. Matheny's discovery agents poll for resources in assigned or specified locations, and the information retrieved may be used by a network manager. However, Matheny discloses nothing regarding a discovery agent propagating a request to another discovery agent. Even in a network that includes multiple network managers, Matheny does disclose or suggest the possibility that one network manager may be aware of another, or that one may propagate requests or any other information to another such network manager. Matheny fails to disclose, expressly or inherently, propagating requests by one discovery agent to another, and thus does not anticipate claim 11.

Third, and for the sake of argument alone, even if the Office intended to equate or merge the functions of Matheny's network managers and discovery agents in order to support an assertion of anticipation by Matheny, applicant respectfully reasserts that such an assumption contradicts the teachings of Matheny itself. Matheny provides that network managers and discovery agents are separate entities, and that they are not to be combined. The network managers and discovery agents perform separate functions. By Matheny's own

teachings, a network manager and a discovery agent are separate entities, even if they are respectively implemented on the same computer. Thus, Matheny forecloses the possibility of combining (or merging) its network managers and discovery agents.

For the foregoing reasons, appellant respectfully asserts that Matheny fails to teach or suggest, expressly or inherently, each and every element recited by claim 11. Accordingly, appellant requests that the rejections under 35 U.S.C. § 102(e) be withdrawn from claim 11. Additionally, because dependent claims 12, 14-15 and 17-18 apply additional limitations to claim 11, from which each depends, appellant requests that respective rejections under 35 U.S.C. § 102(e) and be withdrawn from claims 12, 14-15 and 17-18. Appellant further requests that claims 11-12, 14-15 and 17-18 be allowed.

Claims 24-25, 27-28 and 30-31

Claim 24 recites a system for automating network-wide resource discovery in networks having multiple subnets:

- a set of inter-subnet discovery agents installed on nodes within the multiple subnets support inter-subnet resource discovery; and
- a first inter-subnet discovery agent on a first node designated as an active discovery agent, the first inter-subnet discovery agent including procedures for facilitating:
 - discovering active discovery agents on neighboring subnets in the network; and
 - propagating an inter-subnet resource discovery search request to the active discovery agents on neighboring subnets.

Appellant asserts that claim 24 is not anticipated by Matheny. Each of the following reasons is sufficient to demonstrate that Matheny fails to anticipate

claim 24.

First, Matheny does not disclose “a first inter-subnet discovery agent on a first node designated as an active discovery agent”, as recited in claim 24. If anything, Matheny discloses just the opposite: the network manager creates a “command file” for each identified discovery agent” (*Matheny*, Page 2, Paragraph 19; emphasis added). Because Matheny fails to disclose or suggest, either expressly or inherently, designating an active discovery agent, Matheny does not to anticipate claim 24.

Second, Matheny does not disclose “propagating an inter-subnet resource discovery search request to the active discovery agents on neighboring subnets,” as recited in claim 24. As argued previously, Matheny’s discovery agents poll for resources in assigned or specified locations, and the information retrieved may be used by a network manager. However, Matheny discloses nothing regarding a discovery agent propagating a request to another discovery agent. Matheny fails to disclose at least the immediately foregoing feature, and thus does not anticipate claim 24.

For at least the foregoing reasons, appellant respectfully asserts that Matheny fails to teach or suggest, expressly or inherently, each and every element recited by claim 24. Accordingly, applicant requests that the rejections under 35 U.S.C. § 102(e) be withdrawn from claim 24. Additionally, because dependent claims 25, 27-28 and 30-31 apply additional limitations to claim 24, from which each depends, appellant requests that respective rejections under 35 U.S.C. § 102(e) and be withdrawn from claims 25, 27-28 and 30-31. Appellant further requests that claims 24-25, 27-28 and 30-31 be allowed.

B. The rejections under 35 U.S.C. §103(a) over the combination of Matheny and Schlonski, and Matheny and Dowling, are not relevant in view of the respectively allowable Independent claims

Claims 3, 6, 13, 16, 26 and 29 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Matheny, in view of U.S. Patent Application Publication No. 2002/0196451 ("Schlonski").

Claims 9-10 and 19-20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Matheny, in view of U.S. Patent No. 6,636,499 ("Dowling").

The deficiencies of Dowling are argued in greater detail hereinafter. Furthermore, appellant asserts that Schlonski fails to cure deficiencies of Matheny, as argued in greater detail immediately below.

Schlonski Fails to Cure Deficiencies of Matheny

Schlonski does not teach or suggest "designating, within a first subnet, a first inter-subnet discovery agent on a first node as an active discovery agent," as recited in claims 1 and 11, nor "a first inter-subnet discovery agent on a first node designated as an active discovery agent, the first inter-subnet discovery agent including procedures for facilitating discovering active discovery agents on neighboring subnets in the network..." as recited in claim 24. More specifically, Schlonski fails to teach or suggest designating a discovery agent within each subnet as active. Simply put, Schlonski is not concerned with designating active discovery agents or discovering discovery agents by way of a first (or any other) discovery agent.

Rather, Schlonski is directed to discovering a newly-installed printer on a network, determining the type (make and model) of the new printer, and then

automatically copying configuration data to the newly-installed printer (Abstract of *Schlonski*). In regard to any sort of "discovery", Schlonski provides that:

At network discovery, a packet is placed on the network 10 and is thus made available to every **printer** that may be on a particular network or subnet. All **printers** such as 14a-14c which are compliant to a standard such as RFC-1759 or RFC-1213 will, according to the standard, respond to the packet (descriptions of these standards can be seen at www.ietf.org). The "payload" part of the packet is a request for three distinct types of data. As shown in step 102, the packet requests the system object ID, which is a special code indicating the make and model or type of **printer** (every manufacturer of printers is assigned a specific code, and then assigns another code to various models it manufactures); a system description, which is a string variable which describes the type of printer in more human-readable terms (e.g., "Xerox DocuPrint N60 printer"); and finally the IP address of the printer in question, which is always provided in a response to a packet. (Paragraph 0029 of *Schlonski*. Emphasis added.).

Schlonski expresses no concern whatsoever for any discovery agent, nor for the ability of an active discovery agent to discover any other discovery agent or agents. Schlonski is solely concerned with **printer** discovery and configuration. Because Schlonski fails to disclose or suggest, either expressly or inherently, designating an active discovery agent (claims 1 and 11), or a first inter-subnet discovery agent including procedures for facilitating discovering active discovery agents on neighboring subnets in the network (claim 24), Schlonski fails to cure the foregoing deficiencies of Matheny.

Furthermore, Schlonski does not teach or suggest "propagating, by the first node containing the active discovery agent, an inter-subnet resource discovery search request to the active discovery agents on neighboring subnets," as recited in claims 1 and 11, or "propagating an inter-subnet resource discovery search request

to the active discovery agents on neighboring subnets” as recited in claim 24. In fact, Schlonski is totally devoid of the terms “propagate”, “propagating”, or any of their respective equivalents, for any purpose. Because Schlonski fails to teach, expressly or inherently, propagating requests by one discovery agent to another, Schlonski fails to cure the foregoing deficiencies of Matheny.

Claims 3, 6 and 9-10

Claims 3, 6 and 9-10 depend, directly or indirectly, from claim 1. As argued above, appellant respectfully asserts that claim 1 is allowable. It is axiomatic that claims 3, 6 and 9-10 are also allowable at least by virtue of their dependence from an allowable base claim, as well as for the respectively patentable subject matter that each recites. Furthermore, appellant asserts that no possible combination of Matheny, Schlonski and/or Dowling teaches or suggests all of the respectively recited limitations of claims 3, 6 and 9-10.

Claims 13, 16 and 19-20

Claims 13, 16 and 19-20 depend, directly or indirectly, from claim 11. As argued above, appellant respectfully asserts that claim 11 is allowable. It is axiomatic that claims 13, 16 and 19-20 are also allowable at least by virtue of their dependence from an allowable base claim, as well as for the respectively patentable subject matter that each recites. Furthermore, appellant asserts that no possible combination of Matheny, Schlonski and/or Dowling teaches or suggests all of the respectively recited limitations of claims 13, 16 and 19-20.

Claims 26 and 29

Claims 26 and 29 depend, directly or indirectly, from claim 24. As argued above, appellant respectfully asserts that claim 24 is allowable. It is

axiomatic that claims 26 and 29 are also allowable at least by virtue of their dependence from an allowable base claim, as well as for the respectively patentable subject matter that each recites. Furthermore, appellant asserts that no possible combination of Matheny and Schlonski teaches or suggests all of the respectively recited limitations of claims 26 and 29.

C. The rejections under 35 U.S.C. §103(a) over the combination of Branson and Dowling does not establish a *prima facie* case of obviousness.

Claim 21 stands rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,865,728 (“Branson”), in view of Dowling.

Appellant respectfully submits that the Office has not established a *prima facie* case of obviousness with respect to the combination of Branson and Dowling.

The §103 Standard

In making out a §103 rejection, the Federal Circuit has stated that when one or more references or sources of prior art is required in establishing obviousness, “it is necessary to ascertain whether the prior art *teachings* would appear to be sufficient to one of ordinary skill in the art to suggest making the claimed substitutions or other modification.” *In re Fine*, 5 USPQ 2d, 1596, 1598 (Fed. Cir. 1988). That is, to make out a *prima facie* case of obviousness, the references must be examined to ascertain whether the combined *teachings* render the claimed subject matter obvious. *In re Wood*, 202 USPQ 171, 174 (C.C.P.A. 1979).

Moreover, there is a requirement that there must be some reason, suggestion, or motivation *from the prior art*, as a whole, for the person of ordinary skill to have combined or modified the references. *See, In re Geiger*, 2 USPQ 2d

1276, 1278 (Fed. Cir. 1987). It is impermissible to use the claimed invention as an instruction manual or “template” to piece together the teachings of the prior art so that the claimed invention is rendered obvious. One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fritch*, 23 USPQ 2d 1780, 1784 (Fed. Cir. 1992).

Furthermore, MPEP 706.02(j) states that: “Finally, *the prior art reference* (or references when combined) *must teach or suggest all the claim limitations.*” The importance of this “all elements” requirement is further elaborated by MPEP 2143.03, which states: “To establish *prima facie* obviousness of a claimed invention, *all the claim limitations must be taught or suggested by the prior art.* *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). “All words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). *If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending there from is nonobvious.* *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).”

Therefore, it is essential that *all* of the features and limitations recited by a particular claim be taught or suggested by the prior art references – whether considered alone, or in a properly motivated combination - in order to support a rejection under § 103 against that particular claim. In turn, the failure to support a specific obviousness rejection against an independent claim results a failure to support that same rejection against any claims depending (directly or indirectly) from such independent claim.

The Office's Attempted Combination of Branson and Dowling

The Office argues that Branson discloses nearly all of the recited features of the independent claims, except for certain particular features. The Office then relies upon on Dowling, arguing that Dowling discloses the particular required features, thus curing the deficiencies of Branson (page 8 of Final Office action). Respectfully, the Office is incorrect in this assertion and fails to establish a *prima facie* case of obviousness with respect to the rejected claims for at least the following reasons:

Claim 21

Claim 21 recites a resource discovery framework for resource discovery embodied in a computer-readable medium in a network including multiple subnets and discoverable networked resources, the framework comprising:

- an active discovery agent designated for ones of the multiple subnets for identifying active discovery agents on neighboring subnets within the network;
- a selection mechanism for designating the active discovery agent within each subnet; and
- a request propagation mechanism by which nodes containing the active discovery agents propagate an inter-subnet resource discovery search request to active discovery agents on neighboring subnets.

In regard to claim 21, appellant argues that a *prima facie* case of obviousness over Branson in combination with Dowling has not been established.

Specifically, Branson does not teach or suggest “a resource discovery framework for resource discovery embodied in a computer-readable medium...”, the framework comprising “a selection mechanism for designating the active

discovery agent within each subnet”, as recited in claim 21. Branson does not disclose any sort of selection mechanism for designating an active discovery agent within each subnet as active – not the least of which being a selection mechanism embodied in a computer-readable medium. The Office has admitted to this deficiency of Branson (page 8 of Final Office action). In response to this deficiency, the Office asserts that Dowling teaches a “process wherein user [sic] designates the discovery agent as a commander” (page 8 of Final Office action). Despite the Office’s foregoing assertion, Dowling fails to cure the deficiencies of Branson.

Specifically, Dowling fails to teach or suggest “a resource discovery framework for resource discovery embodied in a computer-readable medium...”, the framework comprising “a selection mechanism for designating the active discovery agent within each subnet”, as recited in claim 21. Rather, Dowling provides that:

“The commander automatically discovers candidate switches that send CDP packets directly to the commander. The commander then produces a list of Ethernet addresses of candidate switches. As candidate switches become members of the cluster, they look for CDP packets from “downstream” devices. A device is downstream of a member if it is one CDP hop further away from the commander than is the member. An administrator may view the list of candidates and add candidates to the cluster through the commander console port, telnet CLI, a Web console or SNMP.”
(Col. 13, lines 44-53 of *Dowling*)

“The user must configure a switch to be the cluster commander. The commander will then examine CDP packets it receives on all interfaces to find candidate switches. The time it takes to discover all candidates depends on the length of CDP intervals that are set on the candidate switches. In one embodiment, the range for the CDP

intervals is between 5 seconds and 15 minutes, with a default CDP interval of 1 minute. From a user interface on the network management station, the user is shown the current candidates for inclusion in the cluster. The first set of candidates will each be one CDP-hop from the commander switch.”

(Col. 13, line 66 to Col. 14, line 9 of *Dowling*. Emphasis added.)

Dowling specifically teaches that a user must configure a switch to be (i.e., function as) a cluster commander. Assuming for the sake of argument alone that a commander switch of Dowling is essentially equivalent to an active discovery agent - and the appellant asserts that such equivalency is **not** the case - Dowling still fails to provide any sort of selection mechanism that is part of a resource discovery framework embodied in a computer-readable medium.

Therefore, there is no way to combine the respective teachings of Branson and Dowling in order to arrive at the subject matter of claim 21, as no possible combination teaches or suggests, at the very least, a resource discovery framework for resource discovery embodied in a computer-readable medium in a network including multiple subnets and discoverable networked resources, the framework comprising a selection mechanism for designating the active discovery agent within each subnet, as recited in claim 21. In view of the foregoing, appellant requests that the § 103(a) rejection of claim 21 over the combination of Branson and Dowling be withdrawn. Appellant further asserts that claim 21 is allowable.

D. The rejections under 35 U.S.C. §103(a) over the combination of Branson, Dowling and Das are not relevant in view of the allowable Independent claim

Claims 22-23 stand rejected under 35 U.S.C. §103(a) as being unpatentable

over Branson in view of Dowling, in further view of U.S. Patent Application Publication No. 2002/0026527 ("Das").

Claims 22 and 23

Claims 22 and 23 depend, directly or indirectly, from claim 21. As argued above, appellant respectfully asserts that claim 21 is allowable. It is axiomatic that claims 22 and 23 are also allowable at least by virtue of their dependence from an allowable base claim, as well as for the respectively patentable subject matter that each recites. Furthermore, appellant asserts that no possible combination of Branson and Dowling teaches or suggests all of the respective recited limitations of claims 22 and 23.

Conclusion

The Office's basis and supporting rationale for the § 102 and § 103 rejections is not supported by the teaching of the cited references. Applicant respectfully requests that the rejections be overturned and that the pending claims be allowed to issue.

Respectfully Submitted,

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(8) Appendix of Appealed Claims

1. (Original) A method for performing resource discovery in a network having multiple subnets and wherein inter-subnet discovery agents installed on nodes within the multiple subnets support inter-subnet resource discovery, the method comprising:

designating, within a first subnet, a first inter-subnet discovery agent on a first node as an active discovery agent;

discovering, by the first inter-subnet discovery agent, active discovery agents on neighboring subnets in the network; and

propagating, by the first node containing the active discovery agent, an inter-subnet resource discovery search request to the active discovery agents on neighboring subnets.

2. (Original) The method of claim 1 wherein the resource discovery search request is a network device discovery request.

3. (Original) The method of claim 2 wherein the network device discovery request is a request to identify printers in the network.

4. (Original) The method of claim 1 wherein the discovering step includes:

receiving, by the first node containing the first active discovery agent, from a second node containing an active discovery agent on a neighboring subnet, information comprising a network address of the second node containing the active discovery agent; and

storing, by the first node, the information in a list identifying neighboring active discovery agents.

5. (Original) The method of claim 4 further comprising the steps of:

receiving, by the first node containing the active discovery agent, a request to provide discovery information for a discoverable resource and in response performing, during the propagating step, the sub-steps of:

passing the request to the active discovery agent on the first node;

searching, by the active discovery agent on the first node, the list of neighboring active discovery agents; and

issuing, by the first node, a search request identifying a resource discovery requester to at least one neighboring active discovery agent in the list identifying neighboring active discovery agents.

6. (Original) The method of claim 5 further comprising the step of:
transmitting, by the first node containing the active discovery agent, to the
resource discovery requester a response including resource discovery
information corresponding to the discoverable resource.

7. (Previously Presented) The method of claim 4 further
comprising:

publishing, by at least one node, address information for neighboring
active discovery agents into a network directory service.

8. (Previously Presented) The method of claim 1 wherein at least
one node comprises a set of device discovery agents, further comprising the step
of:

determining, by the set of device discovery agents, discovery information
for discoverable resources present on the subnet.

9. (Original) The method of claim 1 wherein the designating step
comprises:

automatically selecting, as the active discovery agent, the first inter-
subnet discovery agent from a set of installed discovery agents in the first subnet
according to a criterion.

10. (Original) The method of claim 1 wherein the designating step comprises:

manually selecting, as the active discovery agent, the first inter-subnet discovery agent from a set of installed discovery agents in the first subnet.

11. (Original) A computer-readable medium having computer-executable instructions for facilitating performing resource discovery in a network having multiple subnets and wherein inter-subnet discovery agents installed on nodes within the multiple subnets support inter-subnet resource discovery, the computer-readable medium having computer-executable instructions facilitating performing the steps of:

designating, within a first subnet, a first inter-subnet discovery agent on a first node as an active discovery agent;

discovering, by the first inter-subnet discovery agent, active discovery agents on neighboring subnets in the network; and

propagating, by the first node containing the active discovery agent, an inter-subnet resource discovery search request to the active discovery agents on neighboring subnets.

12. (Original) The computer-readable medium of claim 11 wherein the resource discovery search request is a network device discovery request.

13. (Original) The computer-readable medium of claim 12 wherein the network device discovery request is a request to identify printers in the network.

14. (Original) The computer-readable medium of claim 11 wherein the discovering step includes:

receiving, by the first node containing the first active discovery agent, from a second node containing an active discovery agent on a neighboring subnet, information comprising a network address of the second node containing the active discovery agent; and

storing, by the first node, the information in a list identifying neighboring active discovery agents.

15. (Original) The computer-readable medium of claim 14 further comprising the steps of:

receiving, by the first node containing the active discovery agent, a request to provide discovery information for a discoverable resource and in response performing, during the propagating step, the sub-steps of:

passing the request to the active discovery agent on the first node;

searching, by the active discovery agent on the first node, the list of neighboring active discovery agents; and

issuing, by the first node, a search request identifying a resource discovery requester to at least one neighboring active discovery agent in the list identifying neighboring active discovery agents.

16. (Original) The computer-readable medium of claim 15 further comprising the step of:

transmitting, by the first node containing the active discovery agent, to the resource discovery requester a response including resource discovery information corresponding to the discoverable resource.

17. (Previously Presented) The computer-readable medium of claim 14 further comprising:

publishing, by at least one node, address information for neighboring active discovery agents into a network directory service.

18. (Previously Presented) The computer-readable medium of claim 11 wherein at least one node comprises a set of device discovery agents, further comprising the step of:

determining, by the set of device discovery agents, discovery information for discoverable resources present on the subnet.

19. (Original) The computer-readable medium of claim 11 wherein the designating step comprises:

automatically selecting, as the active discovery agent, the first inter-subnet discovery agent from a set of installed discovery agents in the first subnet according to a criterion.

20. (Original) The computer-readable medium of claim 11 wherein the designating step comprises:

manually selecting, as the active discovery agent, the first inter-subnet discovery agent from a set of installed discovery agents in the first subnet.

21. (Previously Presented) A resource discovery framework for resource discovery embodied in a computer-readable medium in a network including multiple subnets and discoverable networked resources, the framework comprising:

an active discovery agent designated for ones of the multiple subnets for identifying active discovery agents on neighboring subnets within the network;

a selection mechanism for designating the active discovery agent within each subnet; and

a request propagation mechanism by which nodes containing the active discovery agents propagate an inter-subnet resource discovery search request to active discovery agents on neighboring subnets.

22. (Original) The resource discovery framework of claim 21 wherein a list is maintained by each active discovery agent identifying the active discovery agent for neighboring subnets.

23. (Original) The resource discovery framework of claim 22, further including:

a directory service in communication with the active discovery agents in the network, the directory service including information corresponding to the lists maintained by the active agents.

24. (Original) A system for automating network-wide resource discovery in networks having multiple subnets:

a set of inter-subnet discovery agents installed on nodes within the multiple subnets support inter-subnet resource discovery; and

a first inter-subnet discovery agent on a first node designated as an active discovery agent, the first inter-subnet discovery agent including procedures for facilitating:

discovering active discovery agents on neighboring subnets in the network;
and

propagating an inter-subnet resource discovery search request to the active discovery agents on neighboring subnets.

25. (Original) The system of claim 24 wherein the resource discovery search request is a network device discovery request.

26. (Original) The system of claim 25 wherein the network device discovery request is a request to identify printers in the network.

27. (Original) The system of claim 24 wherein the procedure for discovering active discovery agents facilitates:

receiving, by the first node containing the first active discovery agent, from a second node containing an active discovery agent on a neighboring subnet, information comprising a network address of the second node containing the active discovery agent; and

storing, by the first node, the information in a list identifying neighboring active discovery agents.

28. (Original) The system of claim 27 wherein the first inter-subnet discovery agent includes procedures that facilitate, in response to receiving a request to provide discovery information for a discoverable resource, generating a response by:

searching the list of neighboring active discovery agents; and

issuing a search request identifying a resource discovery requester to at least one neighboring active discovery agent in the list identifying neighboring active discovery agents.

29. (Previously Presented) The system of claim 28 wherein the first inter-subnet discovery agent includes procedures that facilitate:

transmitting, by the first node, to the resource discovery requester a response including resource discovery information corresponding to the discoverable resource.

30. (Original) The system of claim 27 wherein the first node further comprises procedures facilitating publishing address information for neighboring active discovery agents, obtained by the first inter-subnet discovery agent, into a network directory service.

31. (Original) The system of claim 24 wherein the first node comprises a set of device discovery agents for determining discovery information for discoverable resources present on the subnet.

(9) Appendix of Submitted Evidence

None.

(10) Appendix of Related Proceedings

None.